AIR3.950109.009

USAF PROPERTY

PREVIOUS EDITION OF THIS FORM MAY BE USED.

Lt Col Dan Brown
HQ AFMOA/SGPT
202-767-5018
Biological Effects Rad
13A5310-B04

Suitland Records Ctr

DF385312

DD-DRE(AR)636

4. DATE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGRADING	8. RELEASE LIMITATION	9. LEVEL OF RESUME
10 10 66	D. Chang 01 06 66	U U	N/A	FO NF	A. Work Unit

10a. CURRENT NUMBER/CODE: 62405154 7757 01 002

10b. PRIOR NUMBER/CODE: 62405124 7757 01 002

11. TITLE

12. SCIENTIFIC OR TECH. AREA

13. START DATE

14. CRIT. COMPL. DATE

15. FUNDING AGENCY

16. PROCURE. METHOD

17. CONTRACT GRANT — a. DATES — b. NUMBER — c. TYPE — d. AMOUNT

18. RESOURCES EST.	a. PROFESSIONAL MAN-YEARS	b. FUNDS (In thousands)
PRIOR FY 66	1	N/A
CURRENT FY 67	1	N/A

19. GOV'T LAB/INSTALLATION/ACTIVITY

NAME:

ADDRESS: USAF School of Aerospace Medicine, Brooks AFB, Texas 78235

RESP. IND.: Mitchell, John [illegible] SMBRH

TEL.: [illegible] 811 [illegible]

20. PERFORMING ORGANIZATION

[illegible] USAF School of Aerospace Medicine [illegible] Brooks AFB, Texas 78235

Mitchell [illegible] SMBRH

[illegible]

21. TECHNOLOGY UTILIZATION

22. KEYWORDS

(U) Technical Objective: The principal objective of this work is to investigate energies and intensities of space radiation encountered in aerospace operations and to relate the findings to current and future radiobiological research.

(U) Approach: Currently available space radiation information, including recent solar flare data will be compiled and analyzed. This information will be [illegible] and presented in terms of anticipated aerospace missions. [illegible] include certain theoretical calculations as well as experimental measurements of electron and proton depth doses as a function of energy.

(U) Progress: Contacts have been established with two primary sources of space radiation information viz., the Manned Spacecraft Center (MSC) Radiation and Fields Branch and the Space Physics Laboratory of the Aerospace Corporation. Information obtained from these sources is being used on a continuing basis to update the [illegible] and radiobiological research programs.

27. COMMUNICATIONS SECURITY: a. COMSEC OR COMSEC RELATED ☐ b. NOT RELATED ☐

28.

29. OSD CODE

30. BUDGET CODE

31. MISSION OBJECTIVE

32. PARTICIPATION

33. REQUESTING AGENCY

34. SPECIAL EQUIPMENT

35. EST FUNDS (In thousands)

36.

DD FORM 1498 (Items 1-26 identical to NASA Form 1122) OVER

UNCLASSIFIED

Identification No. 7757-01-002 USAF Page 1

Continuing contacts with personnel of the Radiation and Field Branch of NASA/MSC viz. Dr Terry Modisette, Joe Fill, Carlos Warren, Bob Richmond, etc. have resulted in updating our solar flare data periodically

Contacts are also maintained with Dr Stan Freden, Dr Stephen White, and Mr Bob Pruitt of Aerospace corp.

On my request, Dr Carlos Warren gave Seminar @ USAFSAM/SMBR on 8 Dec 1966 - Topic - Apollo Space Radiation Monitoring Systems Continued follow up for planning of MDL -

Major Myrl? Wilson (MOL SPO) visited to discuss both active and passive techniques for measuring space radiation

Sent Dr Berry (NASA/MSC) slides on Space Radiation environment

Work is underway to update all of our Space Radiation Environment Data

23 June 68 NASA - MSC is participating in cross-calibration program with Apollo dosimetry equipment in the proton environment for several of our cyclotron field trips.

Statement of Operation _____ Signature _____ Date _____

Lt Col Dan Brown
HQ AFMDA/SGPT
202-767-5018
Biological Effects Rad
73A5310-B04

Suitland Records Ctr

(Obtain 2 Signatures) Read and Understand (Obtain 2 Signatures)

_____ Date _____ Signature _____ Date _____

_____ Address _____

_____ Date _____ Signature _____ Date _____

_____ Address _____

4 Oct 68 As a follow-up to our proton cross-calibration with NASA-MSC, a one day trip was made to MSC to set-up a cross-calibration on ^{60}Co and ^{137}Cs.

21 Oct 68 Bob Richmond NASA-MSC was contacted in regard to apollo 7 flight badges. He agreed to send any left over powder to SAM for cross-calibration on our TLD reader.

5 Nov 68 Mr Bob Pruitt of Aerospace and Mr Don Robbins of NASA-MSC were contacted in regard to a solar proton event on 30 oct 1968. Mr Pruitt said this was largest flare of S.C. #20 followed by several smaller flares through first of Nov. Mr Robbins said although this was largest RF Burst ever recorded the solar proton event was less than 10^6 P/cm^2.

7 JAN 69 Apollo 7 passive dosimeters were read out and compared with the NASA Dose determinations. Agreement was within 10%

13 Feb 69 Apollo 8 passive dosimeters were read out and it was found that our readings were a factor of 2 ~~t~~ lower

Lt Col Dan Brown
HQ AFMDA/SGPT
202-767-5018
Biological Effects Rad
13A5310-B04

Suitland Records Ctr

Signature Date

2 Signatures) Read and Understand (Obtain 2 Signatures)

Date Signature Date

Address

Date Signature Date

Address

than the NASA results.

15-25 april 69 The solar proton simulator was checked out at NASA-SREL for two different flare models.

10 July 69 Contacted R G Richmond NASA-MSC and arranged to have all subsequent Apollo TLD material sent to us for analysis

15 aug 69 The NASA ^{60}Co source was calibrated with SAM R chamber. Results were extremely good.

18-19 Apr 70 The SAM TLD system was taken to NASA to back up their system for Apollo 13 dosimetry measurements. Doses of 300-420 m RAD were determined.

19-22 May 70 NASA personnel were here for 1 week testing instruments on the 2 MV AC. Problems were encountered with the collimator which the NASA personnel had designed and built.

Lt Col Dan Brown
HQ AFMDA/SGPT
202-767-5018
Biological Effects Rad
13A5310-B04

Suitland Records Ctr

Signature Date
(Obtain 2 Signatures) Read and Understand (Obtain 2 Signatures)
Date Signature Date
Address
Date Signature Date
Address

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

CRITICAL PROCESSING CONTROL ENTRIES

01. AGCY ACCESSION	02. DATE OF SUMM (YY MM DD)	04. KIND OF SUMM REPORT	REPORTS CONTROL SYMBOL
DF385312	691201	D. Change	DD - R & E(AR) 636

ID/SEQ	03. DATE PREV SUMM (YY MM DD)	05. SUMM SEC	06. WORK SEC	07. REGRADING	DISTRIBUTION INSTRUCTIONS 08a1. 1ST CODE	08a2. 2ND CODE	08b. CONTR ACCESS	09. LEVEL OF SUMMARY
A01	690916	U	U		NL		XX YES ☐ NO	A - WORK UNIT

(Punch ID/SEQ in Col 17-19)

PRIMARY NUMBER/CODE

10a1. PROG ELM	10a2. PROJECT NUMBER	10a3. TASK AREA	10a4. WORK UNIT NUMBER	GENERAL USE (Do not punch)
62401F	7757	01	002	

B01	SECOND CONTRIBUTING NUMBER/CODE 10b1. PROG ELM	10b2. PROJECT NUMBER	10b3. TASK AREA	THIRD CONTRIBUTING NUMBER/CODE 10c1. PROG ELM	10c2. PROJECT NUMBER	10c3. TASK AREA

C01 C02 C03 11. TITLE - PRECEDE WITH SEC CODE IN PARENTHESIS

(U) Interagency Comparison Cross Calibration of Dosimetry Technics

D01	SCIENTIFIC AND TECHNOLOGICAL AREA CODES 12a. PRIM	12b. 2ND	12c. 3RD	13. W/U START DATE (YY MM)	14. W/U EST COMPL DATE (YY MM)	FUNDING AGENCIES 15a. PRIM	15b. 2ND	15c. 3RD	16. PERFORMANCE METHOD
	012300	014100	001900	6507	Cont	DF			C. In-house

CONTRACT/GRANT DATA

E01	17a1. EFF DATE (YY MM)	17a2. EXPR DATE (YY MM)	17b. CONTRACT/GRANT NUMBER	17c. TYPE	17d1. PART	17d2. AMOUNT	17e. KIND OF AWARD	17f. CUMULATIVE AMT

F01	PRECEDING F/Y RESOURCES ESTIMATE 18.1 YEAR YY	18.1a PROF MAN YEARS	18.1b FUNDS IN THOUSANDS	CURRENT F/Y RESOURCES ESTIMATE 18.2 YEAR YY	18.2a. PROF MAN YEARS	18.2 b. FUNDS IN THOUSANDS
	69	1,0	15	70	1,0	15

RESPONSIBLE DOD ORGANIZATION

G01 G02	19a. ORGANIZATION NAME	USAF School of Aerospace Medicine
H01	19b. ORGANIZATION ADDRESS	Brooks AFB, Texas 78235
J01	19c. NAME OF RESPONSIBLE INDIVIDUAL	Mitchell, J C — 19d. PHONE 512 536 x 3511

PERFORMING ORGANIZATION

K01 K02	20a. ORGANIZATION NAME	USAF School of Aerospace Medicine
L01 L02	20b. ORGANIZATION ADDRESS	Brooks AFB, Texas 78235
M01	20c. NAME OF PRINCIPAL INVESTIGATOR	Mitchell, J C — 20d. PHONE 512 536 X3511 — 20e. SSAN
N01	20f. ASSOCIATE INVESTIGATOR	Allen, S J — 20g. 2ND ASSOCIATE INVESTIGATOR

P01 THRU P25 22. KEYWORDS - PRECEDE EACH WITH SECURITY CODE IN PARENTHESIS AND SEPARATE WITH A SEMICOLON.

(U) Space radiation (U) dosimetry (U) solar flare (U) electrons (U) protons

23. TECHNICAL OBJECTIVE OR SCIENTIFIC ABSTRACT. 24. APPROACH. 25. PROGRESS - IDENTIFY EACH PARAGRAPH BY NUMBER AND PRECEDE TEXT WITH SEC CODE IN PARENTHESIS

23. (U) The biological hazards of radiation which might be encountered on any aerospace mission will be assessed through the use of "on board" radiation monitoring instrumentation and the use of biological response data previously obtained through ground based laboratory experiments. The technical objective of this work unit is to provide an accurate correlation between the "Rad" dose measured during an aerospace mission and the "Rad" dose used in the ground based radiobiological research program.

24. (U) This objective is accomplished through, (1) a series of cross calibration experiments using the NASA and USAFSAM radiation sources and dosimetry systems, and (2) the analysis, simulation, and measurement of specific mission oriented dose spectra.

25. (U) Space radiation environmental data compilation and analysis are continuing and progress has been made in relating the NASA empirical data to the USAFSAM radiobiological research program. Part of the Lithium Fluoride powder from the flight badge dosimeters of Apollo 7, 8, and 10 was received from NASA and processed in the Radiation Science Laboratory. USAFSAM personnel will also participate in the readout and analysis of all flight badge dosimeters subsequent to Apollo 11. The NASA 12 curie ^{60}Co source was calibrated with USAFSAM (NBS calibrated) R-chambers. Measurements agreed with NASA calibrations within the instrument accuracy of ±5%. The recently developed solar flare proton simulator was used to successfully simulate two solar flare proton dose spectra.

1. * AVAILABLE TO CONTRACTORS UPON ORIGINATOR APPROVAL.
2. NOTE: KEYPUNCH GUIDANCE IS PROVIDED IN PARENTHESIZED PORTION OF ITEM TITLES.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

CRITICAL PROCESSING CONTROL DATA (First use of all cards)

01. AGCY ACCESSION	02. DATE OF SUMM	04. KIND OF SUMM REPORT	REPORTS CONTROL SYMBOL
DF385312	691106	D. Change	DD-R&E(AR)636

03. DATE PREV SUMM	05. SUMM SEC	06. WORK SEC	07. REGRADING	DISTRIBUTION INSTRUCTIONS: 08a1. 1ST CODE	08a2. 2ND CODE	08b. CONTR ACCESS	09. LEVEL OF SUMMARY
690916	U	U		NL		☒ YES ☐ NO	A - WORK UNIT

PRIMARY NUMBER/CODE

10a1. PROG ELM	10a2. PROJECT NUMBER	10a3. TASK AREA	10a4. WORK UNIT NUMBER	GENERAL USE (Do not punch)
62401F	7757	01	002	

SECOND CONTRIBUTING NUMBER/CODE

10b1. PROG ELM	10b2. PROJECT NUMBER	10b3. TASK AREA

THIRD CONTRIBUTING NUMBER/CODE

10c1. PROG ELM	10c2. PROJECT NUMBER	10c3. TASK AREA

11. TITLE - PRECEDE WITH SEC CODE IN PARENTHESIS

(U) Interagency Comparison-Cross Calibration of Dosimetry Technics

SCIENTIFIC AND TECHNOLOGICAL AREA CODES 12a. PRIM	12b. 2ND	12c. 3RD	13. W/U START DATE YY MM	14. W/U EST COMPL DATE YY MM	FUNDING AGENCIES 15a. PRIM	15b. 2ND	15c. 3RD	16. PERFORMANCE METHOD
012300	014100	001900	6507	Cont	DF	VN		C. In-house

CONTRACT/GRANT DATA

17a1. EFF DATE	17a2. EXPR DATE	17b. CONTRACT/GRANT NUMBER	17c. TYPE	17d1. PART	17d2. AMOUNT	17e. KIND OF AWARD	17f. CUMULATIVE AMT

PRECEDING F/Y RESOURCES ESTIMATE 18.1 YEAR YY	18.1a PROF MAN YEARS	18.1b FUNDS IN THOUSANDS	CURRENT F/Y RESOURCES ESTIMATE 18.2 YEAR YY	18.2a. PROF MAN YEARS	18.2 b. FUNDS IN THOUSANDS
69	1.0	15	70	1.0	15

RESPONSIBLE DOD ORGANIZATION

19a. ORGANIZATION NAME

19b. ORGANIZATION ADDRESS

19c. NAME OF RESPONSIBLE INDIVIDUAL | 19d. PHONE

PERFORMING ORGANIZATION

20a. ORGANIZATION NAME

USAF School of Aerospace Medicine

20b. ORGANIZATION ADDRESS

Brooks AFB, Texas 78235

20c. NAME OF PRINCIPAL INVESTIGATOR: Mitchell, John C. | 20d. PHONE: 512 536 X3511 | 20e. SSAN

20f. ASSOCIATE INVESTIGATOR: Allen, Stewart J. | 20g. 2ND ASSOCIATE INVESTIGATOR

22. KEYWORDS - PRECEDE EACH WITH SECURITY CODE IN PARENTHESIS AND SEPARATE WITH A SEMICOLON.

(U) Space radiation (U) dosimetry (U) solar flare (U) electrons (U) protons

23. TECHNICAL OBJECTIVE OR SCIENTIFIC ABSTRACT. 24. APPROACH. 25. PROGRESS - IDENTIFY EACH PARAGRAPH BY NUMBER AND PRECEDE TEXT WITH SEC CODE IN PARENTHESIS.

23. (U) The biological hazards of radiation which might be encountered on any aerospace mission will be assessed through the use of "on board" radiation monitoring instrumentation and the use of biological response data previously obtained through ground based laboratory experiments. The technical objective of this work unit is to provide an accurate correlation between the "Rad" dose measured during an aerospace mission and the "Rad" dose used in the ground based radiobiological research program. This work includes dose determinations of the Apollo flight dosimeters in conjunction with NASA.

24. (U) This objective is accomplished through, (1) a series of cross calibration experiments using the NASA and USAFSAM radiation sources and dosimetry systems, and (2) the analysis, simulation, and measurement of specific mission oriented dose spectra.

25. (U) Space radiation environmental data compilation and analysis are continuing and progress has been made in relating the NASA empirical data to the USAFSAM radiobiological research program. Part of the Lithium Fluoride powder from the flight badge dosimeters of Apollo 7, 8, and 10 was received from NASA and processed in the Radiation Science Laboratory. USAFSAM personnel will also participate in the readout and analysis of all flight badge dosimeters subsequent to Apollo 11. The NASA 12 curie ^{60}Co source was calibrated with USAFSAM (NBS calibrated) R-chambers. Measurements agreed with NASA calibrations within the instrument accuracy of $\pm$5%. The recently developed solar flare proton simulator was used to successfully simulate two solar flare proton dose spectra.

1. * AVAILABLE TO CONTRACTORS UPON ORIGINATOR APPROVAL.
2. NOTE: KEYPUNCH GUIDANCE IS PROVIDED IN PARENTHESIZED PORTION OF ITEM TITLES.

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

CRITICAL PROCESSING CONTROL EN

01. AGCY ACCESSION	02. DATE OF SUMM (YY MM DD)	04. KIND OF SUMM REPORT	REPORTS CONTROL SYMBOL
DF 385312	700914	H. Termination	DD - R & E(AR) 636

D/SEQ	03. DATE PREV SUMM (YY MM DD)	05. SUMM SEC	06. WORK SEC	07. REGRADING	DISTRIBUTION INSTRUCTIONS 08a1. 1ST CODE	08a2. 2ND CODE	08b. CONTR ACCESS	09. LEVEL OF SUMMARY
A01	691106	U	U		NL		[X] YES [ ] NO	A - WORK UNIT

(Punch D/SEQ in Col 17-19)

PRIMARY NUMBER/CODE 10a1. PROG ELM	10a2. PROJECT NUMBER	10a3. TASK AREA	10a4. WORK UNIT NUMBER	GENERAL USE (Do not punch)
62202F	7757	01	002	

B01	SECOND CONTRIBUTING NUMBER/CODE 10b1. PROG ELM	10b2. PROJECT NUMBER	10b3. TASK AREA	THIRD CONTRIBUTING NUMBER/CODE 10c1. PROG ELM	10c2. PROJECT NUMBER	10c3. TASK AREA

C01 C02 C03 — 11. TITLE - PRECEDE WITH SEC CODE IN PARENTHESIS:

D01	SCIENTIFIC AND TECHNOLOGICAL AREA CODES 12a. PRIM	12b. 2ND	12c. 3RD	13. W/U START DATE (YY MM)	14. W/U EST COMPL DATE (YY MM)	FUNDING AGENCIES 15a. PRIM	15b. 2ND	15c. 3RD	16. PERFORMANCE METHOD

CONTRACT/GRANT DATA

E01	17a1. EFF DATE (YY MM)	17a2. EXPR DATE (YY MM)	17b. CONTRACT/GRANT NUMBER	17c. TYPE	17d1. PART	17d2. AMOUNT	17e. KIND OF AWARD	17f. CUMULATIVE AMT

P01	PRECEDING F/Y RESOURCES ESTIMATE 18.1 YEAR YY	18.1a PROF MAN YEARS	18.1b FUNDS IN THOUSANDS	CURRENT F/Y RESOURCES ESTIMATE 18.2 YEAR YY	18.2a. PROF MAN YEARS	18.2 b. FUNDS IN THOUSANDS
	70	1.0	15	71	0.5	5

RESPONSIBLE DOD ORGANIZATION

G01 G02 — 19a. ORGANIZATION NAME

H01 — 19b. ORGANIZATION ADDRESS

J01 — 19c. NAME OF RESPONSIBLE INDIVIDUAL | 19d. PHONE

PERFORMING ORGANIZATION

K01 K02 — 20a. ORGANIZATION NAME

L01 L02 — 20b. ORGANIZATION ADDRESS

M01 — 20c. NAME OF PRINCIPAL INVESTIGATOR | 20d. PHONE | 20e. SSAN

N01 — 20f. ASSOCIATE INVESTIGATOR | 20g. 2ND ASSOCIATE INVESTIGATOR

P01 THRU P25 — 22. KEYWORDS - PRECEDE EACH WITH SECURITY CODE IN PARENTHESIS AND SEPARATE WITH A SEMICOLON.

23. TECHNICAL OBJECTIVE OR SCIENTIFIC ABSTRACT. 24. APPROACH. 25. PROGRESS - IDENTIFY EACH PARAGRAPH BY NUMBER AND PRECEDE TEXT WITH SEC CODE IN PARENTHESIS.

25. (U) The following information covers the period from 1 December 1969 to 31 August 1970. Assistance was given to the NASA Manned Spacecraft Center in reading out the Apollo 12 Dosimeters. The USAFSAM Thermoluminescent Dosimetry reader was taken to NASA/MSC for several days in support of this work. A series of special calibration experiments was performed for NASA/MSC using the USAFSAM Electron Linear Accelerator. Electron beams of 4, 5, 6, and 7 Mev were set up and field maps, dose rate, and rate vs distance determinations were made at each of these energies for the NASA experiments. This work unit is being discontinued due to diminished responsibilities in support of the Space program.

1. AVAILABLE TO CONTRACTORS UPON ORIGINATOR APPROVAL.
2. NOTE: KEYPUNCH GUIDANCE IS PROVIDED IN PARENTHESIZED PORTION OF ITEM TITLES.

UNCLASSIFIED

SMRP

RESEARCH AND TECHNOLOGY RESUME	1.	2. GOVT ACCESSION	3. AGENCY ACCESSION	REPORT CONTROL SYMBOL
			DF385312	DD-DRE(AR)636

TE OF RESUME	5. KIND OF RESUME	6. SECURITY	7. REGRADING	8. RELEASE LIMITATION	9. LEVEL OF RESUME
24 04 68	D. Change 10 10 66	U RPT U WRK	N/A	NL	A. Work Unit

10a. CURRENT NUMBER/CODE	10b. PRIOR NUMBER/CODE
6240515F 7757 01 002	62405154 7757 01 002

11. TITLE: Determination of the Characteristics of Radiation in Space

12. SCIENTIFIC OR TECH. AREA	13. START DATE	14. CRIT. COMPL. DATE	15. FUNDING AGENCY

16. PROCURE. METHOD	17. CONTRACT/GRANT a. DATE / b. NUMBER / c. TYPE / d. AMOUNT	18. RESOURCES EST.	a. PROFESSIONAL MAN-YEARS	b. FUNDS (In thousands)
		PRIOR FY		
		CURRENT FY		

19. GOV'T LAB/INSTALLATION/ACTIVITY	20. PERFORMING ORGANIZATION
NAME.	NAME
ADDRESS	ADDRESS
RESP. INDIV.	INVESTIGATORS PRINCIPAL ASSOCIATE
TEL:	TEL TYPE

21. TECHNOLOGY UTILIZATION	22. COORDINATION

23. KEYWORDS

24.

26. Progress: (U) Space radiation environmental data compilation and analses are continuing and work is progressing to relate NASA empirical data to the USAFSAM radiobiological research program. Three of the flight qualified Apollo radiation monitoring devices, i.e., (1) Personnel Radiation Dosimeter (PRD); (2) Radiation Survey Meter (RSM), and (3) Van Allen Belt Dosimeter (VABD) were calibrated in a joint NASA/MSC and USAFSAM cross-calibration program conducted at the Oak Ridge Isochronous Cyclotron Facility 7-9 April 1968. The threefold objective of this program was to (1) determine their proton energy response characteristics at a dose rate less than 75 rads/hr. for five different energies in the range between 10 and 40 Mev; (2) calibrate the VABD to dose rates up to 1000 rads/hr. and (3) to perform saturation curves on the VABD ionization chambers. Minor difficulties with the Transmission Ion Chamber (TIC) and cyclotron operation (vacuum fluctuation, RF stability, and beam stop) were encountered but the test objectives were met within our allotted/scheduled time.

27. COMMUNICATIONS SECURITY	28.	29. OSD CODE	30. BUDGET CODE
☐ a. COMSEC OR COMSEC RELATED ☐ b. NOT RELATED			

31. MISSION OBJECTIVE	32. PARTICIPATION

REQUESTING AGENCY	34. SPECIAL EQUIPMENT
ST. FUNDS (In thousands)	35.
CFY+1	

DD FORM 1 AUG 64 1498 (Items 1 to 26 identical to NASA Form 1122) OVER

UNCLASSIFIED

RESEARCH AND TECHNOLOGY WORK UNIT SUMMARY

CRITICAL PROCESSING CONTROL ENTRIES

01. AGCY ACCESSION	02. DATE OF SUMM (YY MM DD)	04. KIND OF SUMM REPORT
DF385312	~~690916~~	D. Change

REPORTS CONTROL SYMBOL: DD-R&E(AR) 636

03. DATE PREV SUMM (YY MM DD)	05. SUMM SEC	06. WORK SEC	07. REGRADING	DISTRIBUTION INSTRUCTIONS: 08a1. 1ST CODE	08a2. 2ND CODE	08b. CONTR ACCESS (X) YES ( ) NO	09. LEVEL OF SUMMARY
~~680424~~	U	U		NL		X	A - WORK UNIT

PRIMARY NUMBER/CODE: 10a1. PROG ELM	10a2. PROJECT NUMBER	10a3. TASK AREA	10a4. WORK UNIT NUMBER	GENERAL USE (Do not punch)
62401F	7757	01	002	

SECOND CONTRIBUTING NUMBER/CODE: 10b1. PROG ELM	10b2. PROJECT NUMBER	10b3. TASK AREA	THIRD CONTRIBUTING NUMBER/CODE: 10c1. PROG ELM	10c2. PROJECT NUMBER	10c3. TASK AREA

11. TITLE - PRECEDE WITH SEC CODE IN PARENTHESIS:

SCIENTIFIC AND TECHNOLOGICAL AREA CODES: 12a. PRIM	12b. 2ND	12c. 3RD	13. W/U START DATE (YY MM)	14. W/U EST COMPL DATE (YY MM)	FUNDING AGENCIES: 15a. PRIM	15b. 2ND	15c. 3RD	16. PERFORMANCE METHOD
012300	014100	001900	6507	Cont	DF			C. In-house

CONTRACT/GRANT DATA

17a1. EFF DATE (YY MM)	17a2. EXPR DATE (YY MM)	17b. CONTRACT/GRANT NUMBER	17c. TYPE	17d1. PART	17d2. AMOUNT	17e. KIND OF AWARD	17f. CUMULATIVE AMT

PRECEDING F/Y RESOURCES ESTIMATE: 18.1 YEAR YY	18.1a PROF MAN YEARS	18.1b FUNDS IN THOUSANDS	CURRENT F/Y RESOURCES ESTIMATE: 18.2 YEAR YY	18.2a. PROF MAN YEARS	18.2 b. FUNDS IN THOUSANDS
69	1.0	15	70	1.0	15

RESPONSIBLE DOD ORGANIZATION

19a. ORGANIZATION NAME:

19b. ORGANIZATION ADDRESS:

19c. NAME OF RESPONSIBLE INDIVIDUAL | 19d. PHONE:

PERFORMING ORGANIZATION

20a. ORGANIZATION NAME:

20b. ORGANIZATION ADDRESS:

20c. NAME OF PRINCIPAL INVESTIGATOR | 20d. PHONE | 20e. SSAN

20f. ASSOCIATE INVESTIGATOR | 20g. 2ND ASSOCIATE INVESTIGATOR

22. KEYWORDS - PRECEDE EACH WITH SECURITY CODE IN PARENTHESIS. SEPARATE WITH A SEMICOLON.

(U) Space radiation (U) ~~satellite data~~ dosimetry (U) solar flare (U) electrons (U) protons

23 TECHNICAL OBJECTIVE OR SCIENTIFIC ABSTRACT * 24. APPROACH 25. PROGRESS * IDENT BY EACH PARAGRAPH BY NUMBER AND PRECEDE TEXT WITH SEC CODE IN PARENTHESIS.

25. (U) ~~Report period April 68 thru August 69.~~ Space radiation environmental data compilation and analyses are continuing and progress has been made in relating the NASA empirical data to the USAFSAM radiobiological research program. Part of the Lithium Fluoride powder from the flight badge dosimeters of Apollo 7, 8, and 10 was received from NASA and processed in the Radiation Science Laboratory. USAFSAM personnel will also participate in the readout and analysis of all flight badge dosimeters subsequent to Apollo 11. The NASA 12 curie ^{60}Co source was calibrated with USAFSAM (NBS calibrated) R- chambers. Measurements agreed with NASA calibrations within the instrument accuracy of $\pm$ 5%. The recently developed solar flare proton simulator was used to successfully simulate two solar flare proton dose spectra

DD FORM 1498 JUL 65 (PROPOSED REVISION - AFSC TEST) AFSC-AAFB-WASH.,D.C.

1. * AVAILABLE TO CONTRACTORS UPON ORIGINATOR APPROVAL.
2. NOTE: KEYPUNCH GUIDANCE IS PROVIDED IN PARENTHESIZED PORTION OF ITEM TITLES.